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ABSTRACT

Research involving Potkay and Allen's Adjective Generation Technique (AGT) is reviewed concerning the measurement of anxiety. In this paper, no distinction is made between state anxiety and trait anxiety. It is suggested that state and trait anxiety may be considered apart from behavioral consistency. The issue of dramaturgical quality is discussed: if a person performs a persuasive task well, he or she is thought of as persuasive, whether or not the person's behavior is consistently persuasive. It is suggested that special instructions be given to the examinee in order to measure anxiety. Instead of the usual instructions to "record five adjectives to describe yourself," one might say, "record five adjectives to indicate how you feel." This paper consists primarily of the following sections: (1) the author's work involving the concept of anxiety; (2) methods of scoring anxiety with the AGT, and their reliability and validity; (3) strengths and weaknesses of AGT; and (4) research and application using AGT measures of anxiety. This research includes the effect of listening to music, sex differences, relaxation training, and individuals' therapy. A five-page list of references concludes the paper. (GDC)

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THE ADJECTIVE GENERATION TECHNIQUE (AGT) AND THE TRAIT-ANXIETY, STATE-ANXIETY DISTINCTION

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THE ADJECTIVE GENERATION TECHNIQUE (AGT) AND THE TRAIT-ANXIETY, STATE-ANXIETY DISTINCTION

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The Adjective Generation Technique (AGT) was developed by Charles R. Potkay and the writer. A classroom demonstration by Gordon Allport (1961) provided the germ of the idea for the AGT. Allport simply had students describe a visiting stranger by recording adjectives (Allen & Potkay, 1983). In the first application of the AGT, student-subjects also listed adjectives to describe a target person, but numerical values were assigned to each word so that a quantitative score could be computed by summing over the values of words produced by each subject (Allen, 1970; 1971; Allen & Potkay, 1983, Chapter 1). Values came from an expanded version of Norman Anderson's (1968) catalogue of words and corresponding "likability" scores. The initial AGT list was increased further to 1300 words and corresponding Favorability values (FAV) all derived in the same manner as Anderson's "likability" scores (Allen & Potkay, 1983). In 1978 the list was increased to about 2200 words, each with a FAV value and scores on two additional dimensions, Femininity (FEM) and Anxiety (ANX). Although adjectives predominate, other word forms generated by actual subjects are included.

The Distinction between State and Trait

Readers who may be familiar with our work will recognize that we have made no attempt to distinguish between state and trait anxiety as measured by the AGT (Allen and Potkay, 1973; 1977; 1983). Instead we have preferred to label AGT results "self-description" rather than

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"state" or "trait." We hold that traditional definitions of state and trait preclude a nonarbitrary distinction (Allen & Potkay, 1981). In brief, we have argued that three underlying beliefs have contributed to the arbitrariness of the distinction (Allen & Potkay, 1983). First, it has been assumed that a label can refer to both a "state" and a "trait." The label "anxious" is a prime example. Because of this belief, a label is assumed to be in the "state" category if it is found on a instrument designated "state measure" and is thought to be in "trait" category if it is found on a list or questionnaire declared a "trait measure" (compare the ACL "trait" measure - Gough & Heilbrun, 1965 - and the POMS "state" measure - McNair, Loor & Droppleman, 1971, or see Allen & Potkay, 1981). In other words, to determine the nature of a label, reference is made to the discretionary designation of the instrument with which it is associated.

The second belief is that whether an instrument measures state or trait depends on the instructions accompanying it. An instruction calling on the subject or client to focus on "yourself as your are now" supposedly yields "state" data. Conversely, an instruction informing subjects or clients to consider themselves in "general" is thought to generate "trait" data (for an example of this orientation, see Zuckerman & Lubin, 1965, and Zuckerman, 1979). The contention that "now" and "general" instructions produce different data is a mere assertion, rather than a logical or empirical statement. Allen and Potkay (1981) note it is far from necessary that those different instructions elicit different responses from subjects.

The third belief is that "state" and "trait" are inextricably tied up so that a measure of "state" is used to derive an index of "trait." Supposedly, "trait" data is generated by summing over blocks

of "state" data (see Epstein, 1977, 1979 for an example of this orientation). In this case, it is covertly assumed that the time interval between measurement occasions determines whether "state" or "trait" is being assessed. Responses recorded at short intervals (hours, days) are thought to be "state," while responses made after a relatively great lapse of time (weeks, months) are considered "trait." Again, that recordings made at different intervals represent different data is asserted rather than demonstrated. Aside from being founded on a simple assertion, the third belief entails a number of problems. One difficulty is indicated by the question, "Does the interval between measurement occasions 'set' subjects or clients to yield state or trait responses, or does it create 'demand characteristics' dictating that respondents conform to 'state' or 'trait' assumptions?" (see Allen & Potkay, 1981, 1983). A second problem is deciding on where to draw the line between state and trait data. How long must the interval between measurements be before state becomes trait? A final difficulty resides in the practice of summing over blocks of data. Using averages produced by summing over blocks of raw data has been criticized on logical, statistical and empirical grounds (Allen, 1979; Day, Marshall, Hamilton & Christy, 1983; Endler, 1983; Mischel & Peake, 1982).

The three beliefs might be boiled down to placement of "state" and "trait" on opposite ends of a single continuum, the dimension of behavioral consistency. "Behavioral consistency" refers to the repetition of behavior across social situations (environmental circumstances each involving a unique set of pressures directed to those operating therein). A label such as "anxious" or "calm" refers to "trait" if behavioral consistency is implied, but indicates "state"

if inconsistency is implied. If is assumed that "anxious" responses of clients or subjects have occurred in many different situations, "anxiety" trait is attributed to them. On the other hand, where anxious responses are thought to be associated with a particular situation, and would not occur in other circumstances, "anxious state" if inferred. Thus, "trait" is implied by the label "anxious" if it is found on an instrument thought to index behavioral consistency, if the "general" instruction is used (i.e., "in general" means "regardless of situations"), or if there is much time between measurement occasions (i.e., respondents are expected to ignore the different situations occurring across time).

Obviously, if Allen and Potkay (1981) are correct about traditional notions of state-trait, a nonarbitrary distinction is possible only if the classic assumptions about the two concepts are altered or abandoned. Specifically, state, trait or both would have to be dissociated from the behavioral consistency continuum. Because the redefinition of "state" and "trait" is a monumental task beyond the capabilities of one person, the remainder of this section will be devoted to offering suggestions hopefully demonstrating that state and trait can be considered apart from behavioral consistency.

State

Wolman (1973) defines emotion as "a complex reaction consisting of physiological change from the homeostatic state, subjectively experienced as feeling and manifested in bodily changes which are preparatory to overt actions" (p. 118; emphasis added). "Physiological" and "feeling" are the key words. A moment of thought about typical measures of "state," particularly "anxiety state" may well convince the reader that what has been called "state" is

basically physiological and thus might be collapsed into "emotion." "State" anxiety measures often ask clients or subjects to indicate whether they feel shaky, tense, sweaty, jittery, etc. A subcale of Endler and colleagues' measure of state anxiety is labeled "physiological-arousal" (see Endler, 1983, Endler and Hunt, 1969). Aside from terminological parsimony and the fact that many already existing state measures are physiological, a critical advantage of collapsing "state" into "emotion" is that the latter is not defined in terms of behavioral consistency. Psychologists whose "state anxiety" measures are basically physiological could go on about their business undisturbed by the redefinition. Obviously, Endler and colleagues would not be troubled by the physiological definition of "state anxiety." They could deal with both "anxiety emotion" defined in terms of physiology, but without reference to consistency, and "trait anxiety," which might or might not depend on behavioral consistency. Wolman's (1973) definition does not have strong "consistency" implications. Emotions do change, but there is no reference to fluctuations at short temporal intervals. Contrast that to Spielberger's (1975) definition of "State Anxiety": "a transitory condition of the organism that varies in intensity and fluctuates over time" (p. 136-137). The phrases "transitory condition" and "fluctuates over time" have strong consistency implications. In any case, arbitrariness of the distinction between the two concepts with which researchers were dealing would be avoided because at most only one would be defined in terms of behavioral consistency.

Trait

Free of the restraints imposed by definition in terms of behavioral consistency, clinicians and researchers could consider

conceptions of traits that do not depend on consistency. Certainly one criterion for the inference of "trait" might be consistency (see Cattell, 1963). Whenever an individual displays anxious reactions in a variety of situations, laypersons and psychologists alike might attribute responses to "anxiety trait." However, when the necessity of "consistency" is eliminated, other criteria for traits become possible. Kelley (1973) counts consistency as only one of three primary bases for attributions. Allen (1984; Potkay & Allen, in press) has extrapolated two such criteria from Hogan's (1983) theory (see Allen, 1984). Dramaturgical Quality refers to the precision, clarity and effectiveness with which a behavior is performed. If someone does something well, s/he is likely to be attributed with the trait corresponding to the behavior she has performed. A person who argues convincingly for a point of view, thereby persuading all who are present, is likely to be attributed with "persuasiveness," even if s/he does not consistently attempt to persuade. Thus, a quality behavioral performance may lead to the inference of a trait, even where consistency is lacking.

A behavior has Dramaturgical Value to the extent that it is uncommon and is directed toward several targets or performed under different conditions. If someone does something that is not often seen and directs the behavior to several targets, a corresponding trait might be inferred, even in the absence of consistency or quality performance. Readers may recognize a similarity to Kelley's (1973) notion of "consensus." If on a camping trip an individual jumps off a cliff into a river, swings across a deep gorge on a rope and paddles a canoe through the rapids, whether s/he performed with grace and agility will not matter. Neither will it matter whether s/he has done

such things before. S/he is likely to be attributed with "boldness." An unusual behavior, even if not performed well or in a variety of situations, still provides a basis for inferring a trait.

The point to be made here is not that "Dramaturical Quality and Value" provide the best avenues to a useful conception of "trait." As of this writing there has been insufficient time to evaluate the two notions. Rather, I wish to convince the reader that consistency is not the sine qua non of "trait." Other approaches to the notion are possible.

Implication for AGT Indices of Anxiety

For better than fifteen years the AGT has been successfully employed in clinical and research settings without the necessity of reference to "state" or "trait" or the difference between the two. In view of that record, one is sorely tempted to leave well enough alone. However, it is understood that some of those who may wish to use the AGT as an index of anxiety have good reasons to view its results in more specific ways than implied by our label "self-description." A suggestion concerning manipulation of instructions may be helpful to those potential users. The usual instruction for the AGT has been "record five adjectives to describe yourself" or words to that effect. To tap anxiety emotion, one might adopt the alternate instruction, "record five adjectives to indicate how you feel," along with the usual ANX scoring. If a measure of anxiety trait is desired, users might try the "true self" instruction in conjunction with ANX values (see Allen & Potkay, 1983, Chapter 6). Here subjects are merely admonished to "describe your true self" without reference to physiological reactions. In effect, subjects are asked to be fully disclosing about themselves and to indicate their "true"

personalities. However, other aspects of the original "true self" instruction may be problematic. In its first uses the "true self" instruction included references to "yourself in general" and "yourself regardless of time, place and situations." Inclusion of these additional elements could leave users open to all the difficulties outlined above.

Assessing Anxiety with the AGT

Having our stance on the trait-state distinction in mind should help the reader to better appreciate our work involving the concept "anxiety." The remainder of the paper is devoted to covering that work. First, methods of scoring anxiety with use of the AGT are considered. Based on this background, reliability and validity of a numerical method for scoring AGT-anxiety is discussed. Then strengths and weaknesses of AGT are covered. The final section is reserved for a summary of research and application using AGT measures of anxiety.

Assigning Valences

To show that the rule of generating adjectives is recording words with disparate meanings and values rather than listing similar terms, Allen and Potkay (1973) asked a graduate assistant to familiarize himself with the AGT list. The assistant then examined three lists of daily self-descriptive words from each of 26 subjects, assigning a plus (+) to words which had favorable connotations and a minus (-) to words with an unfavorable meanings (see Allen & Potkay, 1983, Chapter 3; hereafter, all references to "Chapter" allude to portions of Allen and Potkay, 1983). The number of lists having a mixture of pluses and minuses was compared to the number having all pluses or all minuses. It was discovered that only a small minority of lists had been assigned all pluses or all minuses, indicating a tendency for subjects

to mix favorable and unfavorable words within days.

Of course, the valence-assignment procedure could be conducted to determine within day consistency of the anxiety connotations associated with self-descriptive words. Another possibility is quick assessment of the anxiety content manifested in words used by subjects or clients to describe someone else. Analogously, Allen and Potkay (1983, Chapter 12) report use of valence-assignment to demonstrate the overwhelming tendency for people to describe attractive people in positive terms and unattractive people in negative terms.

Frequency Counts

Frequency counts of words used in description of "self" or "others" can be done without reference to meaning. Allen and Potkay (1983, Chapter 12) report specification of the stereotype applicable to hypnotists by merely ranking words used to describe a hypnotist from most to least frequently employed. Change in anxiety level pre- to post-therapy is immediately evident without quantification by simply ranking self-descriptive words recorded before and after therapy according to frequency of use (see Allen & Potkay, 1983, Chapter 9). Table 1 provides an example.

(Insert Table 1 about here)

Categorization

Instead of quantifying self-descriptive adjectives, Turner and Gilliland (1979) classified subjects according to whether they generated words found in Layman-McDonald's (Goldberg, 1975) "dominant" category, "reserved" category or failed to include words in either category. They were able to show that the "dominant" and "reserved" groups, but not the other group, acted in a manner consistent with their label, regardless of situational pressures. Klein and Willerman

Table 1

Changes in clients' self-descriptions after MHC treatment

	DECREASES	
Adjectives	% Clients at Start	% Clients at End
Nervous	24	22
Depressed	22	7
Scared	15	4
Worried	15	2
Confused	11	7
Bored	9	4
Anxious	7	2
Clean	7	0
Crying	7	2
Lonely	7	2
Restless	7	2
Unhappy	7	2
Working	7	4
Afraid	4	0
Discouraged	4	2
Disturbed	4	0
Forgetful	4	0
Glad	4	2
Honest	4	2
Hurt	4	2
Hyper	4	2
Miserable	4	0
Moody	4	2
Unsure	4	2
	209	

(1979) used a similar categorization method. Ward (1981; see Allen & Potkay, 1983, Chapter 12) secretly planted student-observers in university instructors' classes and had them describe their teachers daily. She found that words classified as applicable to "good teachers," according to a search of the literature, were more frequently generated on days when colleagues composing an evaluation team were present, compared to days when instructors assumed they were not being evaluated. Obviously, words generated in description of self or others could be categorized as connoting anxiety or not and the targets thereby classified as anxious or not.

Quantification

By far, the most typical method of assessing the words used by subjects or clients in description of self or others has been quantification. The method of assigning anxiety (ANX) values involved having 50 male and 50 female university students rate each of the 2200 words previously generated by subjects or clients in AGT research (see Allen & Potkay, 1983, Chapter 2). Instructions were adapted from Anderson (1968). Raters were instructed as follows:

> On the pages that follow, you will find a list of words. Your task will be to think of a person who fits the description represented by a given word and rate the person by circling one of the points on a seven point scale. Let the scale point "0" represent "calm" or being relaxed, peaceful, and free of anxiety, and the scale point "6" represent "anxious" or being tense, nervous, jittery, the opposite of being calm. Thus, if the imagined person who fits a given word appears, in your personal opinion to be "calm," you would circle "0." If, on the other hand, the imagined person who fits a given word appears, in your personal opinion, to be "anxious," you would circle "6." Use "6" and "0" about equally often (p. 24-25).

The rating format is represented below. Table 2 lists some self-descriptive words and ANX values.

calm

0 1 2 3 4 5 6

graceful

0 1 2 3 4 5 6

(insert Table 2 about here)

FAV and FEM values are compiled in analogous fashion (Allen & Potkay, 1983 contains the complete list of 2200 words and mean ratings on all three dimensions--separately for male and female raters--as well as standard deviations). Equipped with the list, clinicians or researchers ask clients or subjects to describe themselves or others. Very often describers are asked to list five words per occasion, usually daily for self-description. The instruction "Think of yourself, then record five self-descriptive adjectives" is representative. In the case of anxiety assessment, researchers or clinicians refer to the list of 2200 words and assign ANX values to each self-descriptive word generated on each occasion. A typical basic score for a subject or client would be the mean of the values corresponding to the words produced on a given occasion (means are preferred in case some individuals fail to produce the required number of words on an occasion or they are allowed to produce any number of words). Examples of uses would be a comparison between the ANX scores for clients in psychotherapy with those of comparable individuals not in therapy (Allen & Potkay, 1983, Chapter 8) and a contrast between ANX scores of individuals after listening to "exciting" music and after listening to "calm" music (Allen & Potkay, 1983, Chapter 11). Allen and Potkay (1983) report that main frame and microcomputer program have been developed to facilitate assignment of values.

Reliability and Validity

Table 2

Self-descriptive Words

and ANX Values

kind	230*
shaky	443
irritated	465
ecstatic	409
jumpy	519
	----
mean=	413.2
SD=	109.9

*600 is maximum; 300 is midpoint

Since most of the research and application of AGT anxiety assessment has been confined to the assignment of numerical values to words produced by subjects, the discussion of reliability and validity is focused on the ANX values. High reliability has been the hallmark of numerical ratings done with the use of Anderson's (1968) method. Anderson reports coefficients of .98-.99 for correlations between rating values collected at different universities over a short period of time. Potkay (Allen & Potkay, 1983, Chapter 2) obtained coefficients of .88-.93 for correlations between ratings done at the same university over an interval of about five years. These coefficients were all obtained for correlations of FAV values, but, due to the close relationship between FAV and ANX and the comparable instructions for the two dimensions, it is quite reasonable to assume high reliability for ANX ratings.

However, reliability of scores derived from the ratings presents special problems (Allen & Potkay, 1983, Chapter 3). Reliability is herein assumed to mean replication of scores. Most psychometric instruments are designed so that highly similar scores can be obtained on different occasions. Although AGT scores can be similar across measurement occasions (see Allen & Potkay, 1983, Chapters 6 & 9) the AGT was designed to produce scores that are free to vary or not, depending on personal or environmental factors. Thus, it lacks the constraining facets that are built into instruments designed to be "reliable." These constraints includes constant scales, anchors and word-stimuli. The AGT involves nothing but the instruction "write down some words." Not surprisingly, the AGT has typically produced disparate scores on different occasions (Allen & Potkay, 1983, Chapter 12; the same is true of separate scores collected on the same

occasion). However, if one ignores all the interpretative problems inherent in summing over blocks of scores in the fashion advocated by Epstein (1979), reliability of AGT ANX scores can be shown (see Allen, 1979; Day et al. 1983; Endler, 1983; and Mischel & Peake, 1982 for an assessment of these problems). Using Epstein's method, Schroeder and Pendelton (1983; also see Allen & Potkay, 1983, Chapter 9) found a coefficient of .79 for the correlation between the sum of subjects' scores for the first six days of the study and the sum of scores for the last six days.

Although ANX values have been available for only a few years, there is already considerable support for their validity as an index of anxiety. First, it is intuitively compelling that ANX should be negatively related to FAV. A description of a person that reflects high favorability (FAV) should connote low anxiety (ANX). It is not socially desirable to be anxious. Consistent with intuition, Potkay (Allen & Potkay, 1983, Chapter 2) reported coefficients of -.44 and -.50 ($p < .01$) for FAV-ANX correlations in two different samples of words. In comparable fashion, ANX values correlated significantly with Toglia and Battig's (1978) Pleasantness values ($r = -.41$, $p < .0001$). When means of ANX values assigned to words generated in daily self-description are considered, the negative relationship between FAV and ANX becomes even stronger ($r = -.56$, $p < .01$; Schroeder & Pendleton, 1983). To show that the favorability-anxiety relationship is not entirely peculiar to FAV-ANX, it may be noted that Rubadeau (1976; Chapter 2) reported a coefficient of -.53 for the correlation between AGT-FAV and Neurotic Anxiety scores derived from the Eysenck Personality Inventory.

Potkay (Allen & Potkay, 1983, Chapter 2) compared ANX values for

words found on Zuckerman and Lubin's (1965) Low Anxiety list with values for words on their High Anxiety list. There was no overlap in values: all the ANX values for High Anxiety words were greater than values for the Low Anxiety words. Fox and Oitker (1981) found that means of ANX values assigned to words generated in self-description--AGT-ANX scores--related closely to scores from Spielberger, Gorsuch and Lushene's (1968) measure of "state" anxiety ($r = .79$, $p < .001$). Further evidence for the validity of AGT as a means of assessing anxiety is considered in the Research and Clinical Applications sections.

Advantages and Disadvantages of AGT

Indices of Anxiety

Turner and Gilliland (1979) summed up many of the advantages accruing to psychologists who ask subjects or clients to describe themselves or others by freely generating adjectives. They wrote, "having subjects generate their own lists of relevant descriptors is similar to the real life of person description...gets them more actively involved in the descriptive process...and avoids the indirect suggestion of traits presented by a checklist" (p. 232). Indeed, spontaneity and naturalness are key attributes of the AGT (see Allen & Potkay, 1983, Chapters 1 & 2 for a complete discussion of advantages). If in the process of person description individuals are allowed to choose their own words, not only can they select from a larger repertoire than provided by any checklist or questionnaire, they can also use their own terms, rather than those forced on them by the author of some personality instrument. Having individuals spontaneously generate adjectives also avoids biases introduced by the constant order of words in a checklist or in a questionnaire and the

response sets produced by value-laden, scale anchors. With typical use of the AGT the stimuli or cues provided to subjects are limited to "Think of yourself, then record five self-descriptive adjectives." Not only does such an instruction present few stimuli, the reference to self creates heightened self-awareness. High self-awareness, in turn, increases the likelihood that self reports will be undistorted reflections of the describer's actual attributes and behaviors (Wicklund, 1979). Finally, since no words, sentences or scales are presented to persons who use the AGT, they have no idea to what dimensions their words might be referred, if any. One may contrast this state of affairs to the transparency of the usual anxiety questionnaire. The importance of this feature became apparent when, during the process of rating their self-descriptive words on FAV, subjects learned that "favorability" was the dimension of interest to the experimenters. Distortion in the direction of self-enhancement was strongly evidenced (see Allen & Potkay, 1983, Chapter 4).

For most purposes, AGT-ANX scores are as easy to derive as any index of anxiety. One needs only to refer to the AGT list of ANX values associated with words generated by subjects or clients. If individuals should produce words not found among the 2200 words, synonyms can be easily located on the list. However, for longitudinal studies covering many days, derivation of AGT-ANX scores may require significantly more time than other indices. This problem has been partially solved by the computer programs mentioned below. Of course, the additional information provided by self-selected words may well compensate for any added effort exerted in the process of quantification on ANX. The assessment of anxiety via the AGT may actually take less time than consumed by other methods when the

frequency, valence or categorization methods are embraced in preference to AGT-ANX scores.

The AGT is subject to all the problems inherent in self-report methods (see Allen & Potkay, 1983, Chapter 2). It is intuitively obviously that individuals may attempt to paint an unrepresentatively positive portrait of themselves when they are the source of personal data. However, it is difficult for subjects or clients to distort when they are unaware of the dimensions on which their data will be scored. Consistent with this contention, Allen and Potkay (1983, Chapters 3,4, and 5) indicate that subjects in longitudinal studies consistently mix favorable and unfavorable words in their daily recordings. They are more than willing to apply pejorative terms to themselves. More empirically, using the Crowne-Marlowe Social Desirability Scale, Buchbinder (1977) reported that the AGT "is not beset by sharing significant common variance with the confounding variable of social desirability" (p. 4).

Research, Clinical and Academic Applications of AGT Indices of Anxiety

Music and Anxiety

Potkay and his colleagues have found AGT-ANX scores readily adaptable to the study of reactions to music (see Allen & Potkay, 1983, Chapter 11). He and William Dick (Chapter 11) had some male subjects view a film, while others saw no film. The movie depicted circumcision rites among primitive people. Music conditions were crossed with the film conditions. Some subjects listened to exciting music while others heard calm music. Additional subjects were not presented with music. After conditions were instituted, subjects were

instructed to record adjectives to describe how they felt during the experiment. Words were assigned ANX values and an ANOVA performed on subjects' AGT-ANX scores. In confirmation of results from previous studies using the same film, a main effect for film-no film indicated greater anxiety in subjects who viewed the film ($p < .01$). The film by music interaction ($p = .06$) revealed that exciting music elicited more anxiety than calm music for subjects not seeing a film.

To show that even musically naive subjects can appreciate the feelings that a composer intended to stir in his listeners, Potkay, Prueter and Allen (1981, Chapter 11) presented students with the third and fourth movements of Brahms' Third Symphony. The procedure and data reduction was the same as in the study with Dick, except that subjects recorded as many words as they wished while they listened. As predicted, mean AGT-ANX scores reflected greater anxiety during the fourth movement ($p < .001$). Also, significantly more adjectives were generated in response to the more exciting fourth movement ($p < .005$).

The sensitivity and precision of AGT-ANX scores as indications of anxiety are no where more evident than in results of subjects' reactions to Grieg's Peer Gynt Suite (Potkay, Chockley, Allen & Prueter, 1981, Chapter 11). Each naive music listener recorded words on index cards while listening to movements of the Suite via cassette player. A soon as a word was written on a card, it was immediately passed to the experimenter who recorded the number showing on the digital counter of the player. Counter numbers were carefully matched with points in each movement. ANX values were assigned to each adjective generated by each subject. AGT-ANX scores were computed per subject, per movement. An ANOVA of those scores revealed a main effect for movements, with differences in anxiety levels fitting predictions

($p < .001$). More important, graphs depicting the correspondence between subjects' recordings and points within movements indicated that specific words and corresponding AGT-ANX scores dovetailed remarkably with the highs and lows of excitement written into the music (see Figure 1). AGT-ANX scores and the raw words themselves indicated that naive subjects were able to rather exactly reflect the emotions intended by Grieg.

(insert Figure 1 about here)

Sex Differences in AGT-ANX Scores

A sex difference in anxiety level was evident early in the use of the ANX dimension. Joy and Wise (1983) had 103 female and 82 male subjects describe themselves in the usual way. They reported a significant tendency for females to have higher AGT-ANX scores ($p < .001$). Subsequently, Sichlau (see Allen & Potkay, 1983; Chapter 9) and Potkay (see Allen & Potkay, 1983; Chapter 12) have also reported greater anxiety in females, indexed by higher AGT-ANX scores. Interestingly, Potkay (Allen & Potkay, 1983; Chapter 12) showed that, according to AGT-ANX scores, mothers, fathers, and female but not male friends saw female children or friends as more anxious than male intimates. Of course, it may be that female subjects just admit to more anxiety than their male counterparts, rather than actually experiencing more anxiety. However, Joy and Wise (1983) argue to the contrary based on the observation that the AGT does not involve the presentation of provocative stimuli.

Use of AGT-ANX Scores
in Clinical Settings

RELAXATION TRAINING. Fox, V. Joy and Rotatari (1981) initiated relaxation training and practice sessions with a 29 year old female

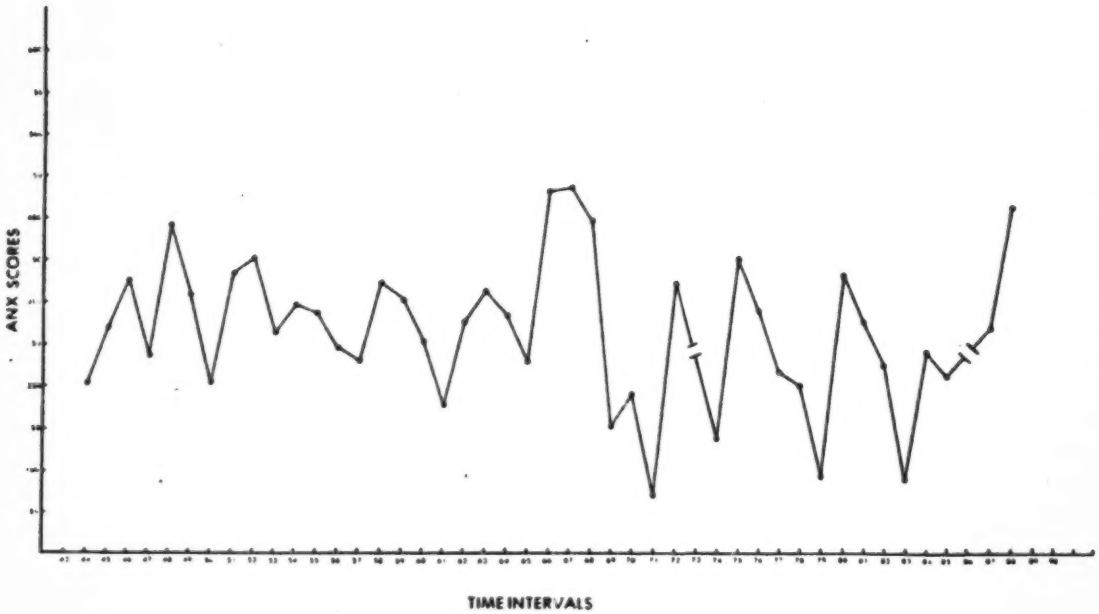

Fig. 1 The Death of Ase

NO.44:ANX=205	NO.45:ANX=158	NO.46:ANX=329	NO.47:ANX=227
depressed	calm	anxious	dark
	morning	cold	old
	sad	dark	sad
	Sunday	mysterious	sadness
	tension	remorse	smooth
		restful	solemn
		tense	

using the Bernstein-Borkovec (1973) method. Twelve training and 63 practice sessions were employed over an 85 day period. A comparison of AGT-ANX scores before and after combined training and practice sessions revealed reduced anxiety after sessions ($p < .001$). A follow-up three months later indicated maintenance of anxiety reductions.

ANX AND FAV INVERSION AND CLINICAL PREDICTION. Normally, FAV scores are numerically higher than ANX scores (Allen & Potkay, 1983, Chapter 9). However, exceptions may prove meaningful. Potkay (Chapter 8) followed a single, interpersonally distressed client through ten therapy sessions and a follow-up. AGT self-descriptions followed all but a couple of the early sessions. When the client was experiencing difficulty in making decisions or conflict with the woman he loved, AGT-ANX scores became numerically greater than AGT-FAV scores. In a similar vein, Norton (see Chapter 9) had clients at Canadian (British Columbia) mental health centers respond to AGT instructions while participating in a program designed to prepare them for reemployment. He found the ANX-FAV inversion for both clients who had yet to receive any treatment and those whose follow-up assessment indicated loss of gains made during therapy. Finally, Schroeder and Pendleton (not included in the 1983 paper; see Chapter 9) plotted FAV and ANX for two psychiatric hospital patients. As indicated in Figure 2, at the beginning of recordings for the female patient, ANX was greater than FAV, but reverted to the usual pattern when she was informed on day three that she would be released on day 30. However, on day 20 inversion occurred and was maintained until dismissal. Possibly the uncertainty of release led to the inversion. A male alcoholism patient consistently showed the usual pattern (FAV > ANX) for 19 days, then

displayed an inversion just prior to leaving the hospital for a drinking binge. Figure 3 shows that one day after his return, the usual pattern resumed. These results provide preliminary indications that AGT ANX-FAV inversions may cue clinicians that clients are undergoing unusual stress or deleterious changes. Schroeder and Pendleton's data even suggest that inversion may sometimes occur before the onset of stressful or pernicious events, thus allowing helpful predictions. It is also possible that sudden changes of ANX and FAV in the same direction may indicate some meaningful change in clients' life situation. Kubasak (see Chapter 2) observed a sudden elevation in a client's ANX and FAV scores. Subsequent inquiries revealed that a change in medication had recently occurred.

(insert Figures 2 & 3 about here)

TAT and ANX. Potkay (Allen & Potkay, 1983, Chapter 10) had 60 male and 60 female university students generate three adjectives to describe each of 17 male and 17 female TAT figures. Results showed large differences among the figures' ANX scores. Also, figures that were ranked highest in ANX tended to be ranked lowest in FAV ($p < .001$). For example, "man embracing woman" had the highest ranked FAV score (mean score of 448; practical upper limit = 550) and the lowest ranked ANX score (mean score 204; practical lower limit = 50). "Woman on bench" was ranked highest on ANX (443) and twenty-first on FAV (285). Results indicate that the TAT cards are more structured than had been previously believed. These data also suggest that quantitative norms in the form of AGT scores might be developed so that clients' descriptions of figures might be concretely indexed as normal or deviant.

APPLICATIONS FOR THE UNIVERSITY CLASSROOM. The study by Ward

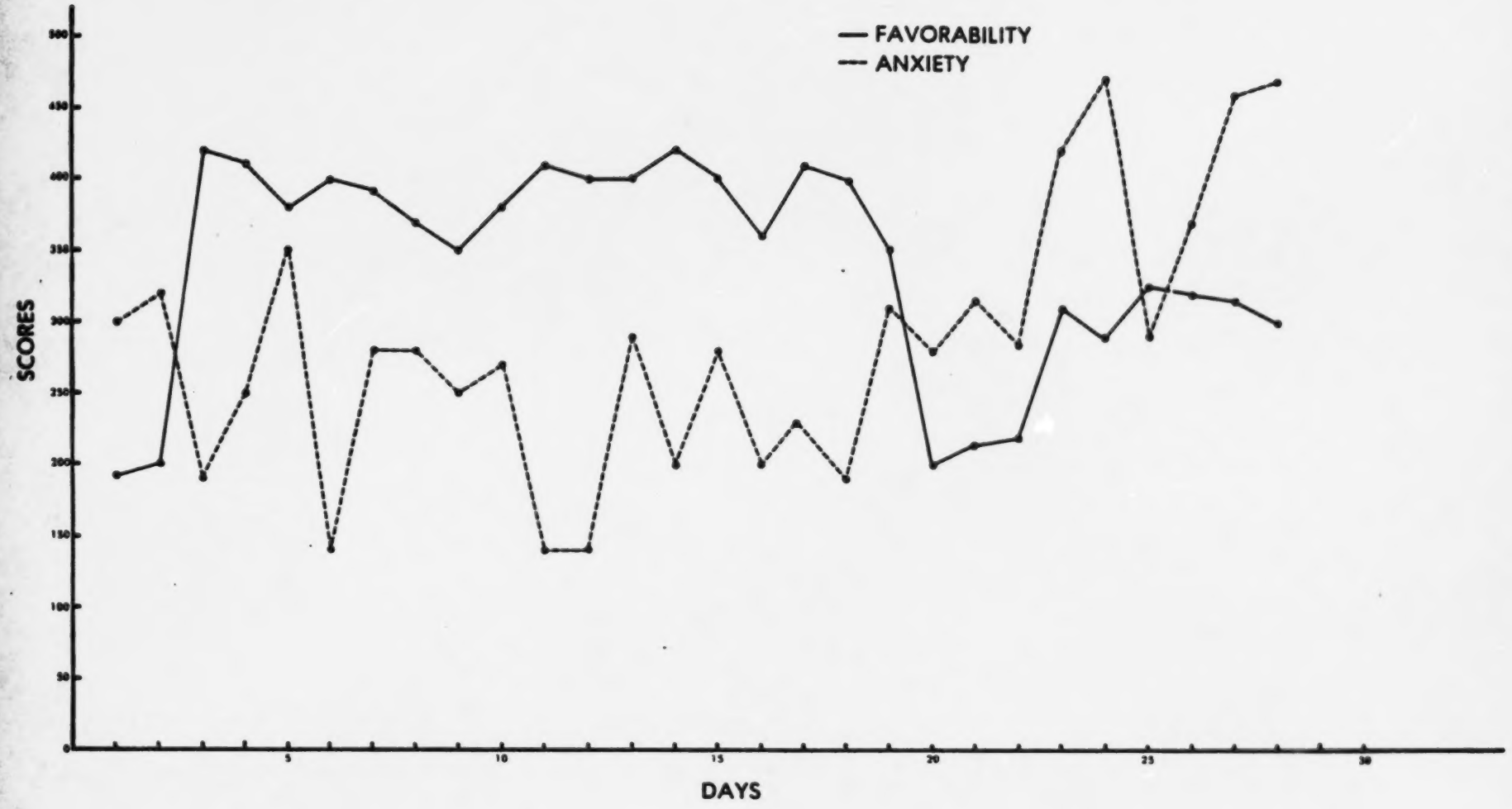

Figure 2 Daily favorability and anxiety scores of a psychiatric inpatient informed of and awaiting discharge (Schroeder and Pendleton, 1979)

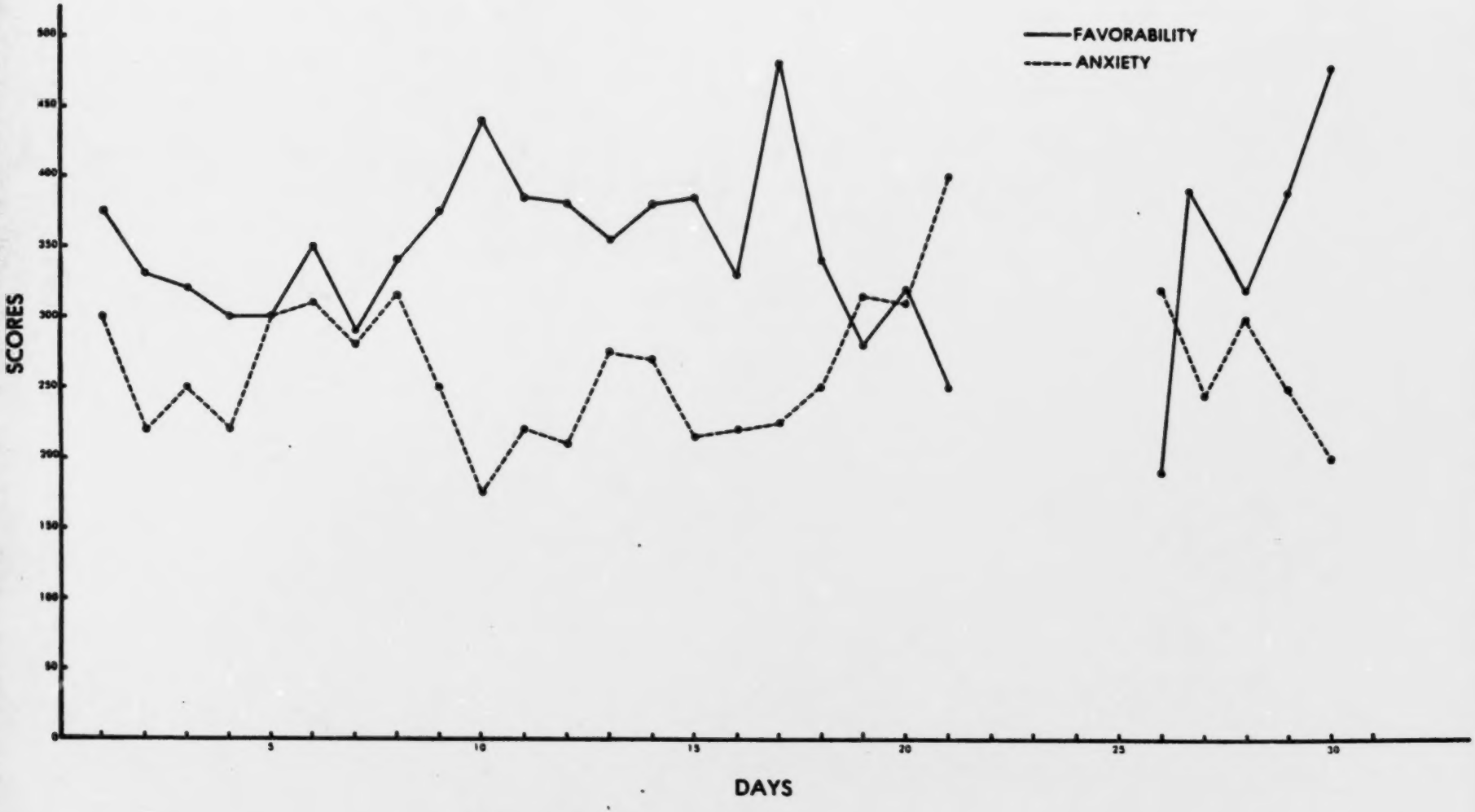

Figure 3 Daily favorability and anxiety scores of a psychiatric inpatient leaving the hospital for a drinking episode (Schroeder and Pendleton, 1979)

(Allen & Potkay, 1983, Chapter 12) yielded results that suggest ANX scores may be used for the identification of instructors in need of help. Since all of her instructors were willing to allow classroom visitation, it is not surprising that they showed low, overall ANX scores. However, an informative exception occurred. One professor was distinguished by higher ANX scores than the others. An examination of the adjectives most frequently used by students to describe him revealed a general negative orientation to teaching. He was described as "boring," "crabby," "sarcastic," "strict," "hurried," "impatient," "mean" and "stern." Perhaps a close look at the words used to describe professors with high ANX scores will suggest areas where change is needed.

In order to help them appreciate the difference between the approaches of Carl Rogers, Fritz Perls and Albert Ellis, Potkay (Chapter 12) had students generate words to describe each clinician as he conducted a filmed therapy session. Analysis of resultant AGT-ANX scores demonstrated the "calm" demeanor of Rogers relative to that of Ellis and Perls ($p < .001$). AGT scores assigned to descriptions of other prominent figures within a field could aid understanding their contributions.

Potkay (Chapter 12) has also helped students understand themselves better. In several classes, he has asked students to describe themselves during the semester and derive daily scores on each of the three AGT dimensions. Students reported that describing themselves daily had revealed previously concealed anxieties. One came to recognize that anxiety before tests was typical of him. Another found that variations in daily events created fluctuations in her ANX scores. In an evaluation of one AGT class-project students

indicated that daily self-description had been worthwhile and had taught them something new about themselves.

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